Patent claims

1. A method for monitoring the program execution in a microcomputer in an electronic appliance, particularly a sensor circuit for motor vehicles, where the program processes input data and generates output data, characterized in that in addition to the execution of the program a copy of the program, which is stored in a different address area than the program in the microcomputer, is executed with the input data intended for the program, and in that the output data from the copy are compared with those from the program and an error message is generated if they do not match.

2. The method as claimed in claim 1, characterized in that further execution of the copy is provided which involves processing prescribed test data, in that the output data from the further execution of the copy are compared with comparative data stored in a memory, and in that an error message is generated if they do not match.

3. The method as claimed in one of the preceding claims, characterized in that following the execution of the program and following the execution of program portions which are used to perform the inventive method a respective flag is set or changed, and in that an error message is generated if not all the flags have been set or changed.

4. A method for monitoring the program execution in at least two interconnected microcomputers in an electronic appliance, particularly a sensor circuit for motor vehicles, characterized in that one of the microcomputers generates a request which is transmitted to the other microcomputer and

there uses prescribed input data to prompt the execution of a program, in that a response which is dependent on the output data is returned to the one microcomputer, and in that the one microcomputer compares the request and the response with one another.

5.   The method as claimed in claim 4, characterized in that the program is a copy of a program which performs the actual function of the other microcomputer.

6.   The method as claimed in either of claims 4 and 5, characterized in that the response is falsified from time to time, which the other microcomputer first of all identifies as an error in the one microcomputer, but which the one microcomputer expects and checks.

7.   The method as claimed in one of claims 4 to 6, characterized in that following the execution of the program and following the execution of program portions which are used for performing the inventive method a respective flag is set or changed, and in that an error message is generated if not all the flags have been set or changed.

8.   The method as claimed in claim 7, characterized in that the content of the flag register is falsified from time to time, which the other microcomputer first of all identifies as an error in the one microcomputer, but which the one microcomputer expects and checks.

9.   The method as claimed in one of claims 4 to 8, characterized in that an error counter in one of the microcomputers counts errors which have been detected for the respective other microcomputer, and in that if an incorrect response and/or a falsification in the flag register

is/are added then the counter reading of the error counter in that microcomputer in which the incorrect response or the falsification in the content of the flag register was/were added is not changed.